

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (original) A cold plate for a beverage chilling apparatus comprising:

a plurality of beverage conducting tubes each having an inlet end, an outlet end, and an intermediate portion constituting a sinuous pattern between said inlet end and said outlet end;

a coolant heat exchanging unit comprising an inlet having a first inner diameter, a first Y-coupling connected to the inlet at a first stage, first and second upstream intermediate segments in fluid communication with first Y-coupling, said first and second upstream intermediate segments having an inner diameter less than the inlet inner diameter, a second Y-coupling connected to the first upstream intermediate segment at a second stage and a third Y-coupling connected to the second upstream intermediate segment at the second stage, four heat exchanging lines connected to respective outlets of the second and third Y-couplings and each heat exchanging line having an inner diameter less than the inner diameter of the first and second upstream intermediate segments, the four heat exchanging lines arranged in a heat exchanging relationship with the beverage conducting tubes at their respective intermediate portions, fourth and fifth Y-couplings connecting the four heat exchanging lines with first and second downstream intermediate

segments, and a sixth Y-coupling connecting the first and second downstream intermediate segments with an outlet;

a metal jacket encasing the beverage conducting tubes and the coolant heat exchanging unit between their respective inlets and outlets.

2. (original) The cold plate of Claim 1 further comprising a plurality of metal tie bars coupling the beverage conducting tubes and heat exchanging lines in a heat exchanging relationship.

3. (original) The cold plate of Claim 1 wherein the heat exchanging lines are each arranged in a repeating sinusoidal path.

4. (original) The cold plate of Claim 3 wherein each heat exchanging line conforms with an adjacent heat exchanging line in a stacked configuration.

5. (original) The cold plate of Claim 1 wherein the heat exchanging lines are constructed of stainless steel.

6. (original) A cold plate for a beverage chilling apparatus comprising:

a plurality of elongate beverage conducting tubes arranged substantially in a sinuous configuration;

a coolant circulating system disposed in heat exchanging relation with the plurality of elongate beverage conducting tubes and comprising an inlet tubular member, first and second upstream intermediate tubular members in fluid communication with the inlet

tubular member and connected to the inlet tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, first and second pairs of heat exchanging tubular members in fluid communication with the first and second upstream intermediate tubular members, the first pair of heat exchanging tubular members connected to the first upstream intermediate tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, the second pair of heat exchanging tubular members connected to the second upstream intermediate tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, first and second downstream intermediate tubular members, said first downstream intermediate tubular member connected to the first pair of heat exchanging tubular members by a consolidating valve having only two inlets and only one outlet, and the second downstream intermediate tubular member connected to the second pair of heat exchanging tubular members by a consolidating valve having only two inlets and only one outlet, and an outlet tubular member connected to the first and second downstream intermediate tubular members by a consolidating valve having only two inlets and only one outlet; and

a cast aluminum jacket encasing the plurality of beverage conducting tubes and the coolant circulating system.

7. (original) A coolant heat exchanging unit comprising:

an inlet having a first inner diameter, a first Y-coupling connected to the inlet at a first stage, first and second upstream intermediate segments in fluid communication with first Y-coupling, said first and second upstream intermediate segments having an inner diameter less than the inlet inner diameter, a second Y-coupling connected to the first upstream intermediate segment at a second stage and a third Y-coupling connected to the second upstream intermediate segment at the second stage, four heat exchanging lines connected to respective outlets of the second and third Y-couplings and each heat exchanging line having an inner diameter less than the inner diameter of the first and second upstream intermediate segments, fourth and fifth Y-couplings connecting the four heat exchanging lines with first and second downstream intermediate segments, and a sixth Y-coupling connecting the first and second downstream intermediate segments with an outlet.

8. (original) The heat exchange unit of Claim 7 wherein the heat exchanging lines are each arranged in a repeating sinusoidal path.

9. (original) Heat exchange unit of Claim 7 wherein the heat exchanging lines are constructed of stainless steel.

10. (original) A beverage circulating system comprising: an inlet tubular member, first and second upstream intermediate tubular members in fluid communication with the inlet tubular member and connected to the inlet tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet,

first and second pairs of heat exchanging tubular members in fluid communication with the first and second upstream intermediate tubular members, the first pair of heat exchanging tubular members connected to the first upstream intermediate tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, the second pair of heat exchanging tubular members connected to the second upstream intermediate tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, first and second downstream intermediate tubular members, said first downstream intermediate tubular member connected to the first pair of heat exchanging tubular members by a consolidating valve having only two inlets and only one outlet, and the second downstream intermediate tubular member connected to the second pair of heat exchanging tubular members by a consolidating valve having only two inlets and only one outlet, and an outlet tubular member connected to the first and second downstream intermediate tubular members by a consolidating valve having only two inlets and only one outlet.

11. (new) A coolant heat exchanging unit comprising:

an inlet having an inner diameter and an outlet having an inner diameter, a pair of upstream primary segments in fluid communication with the inlet and a pair or downstream primary segments in fluid communication with the outlet, said pair of upstream primary segments having an inner diameter less than the inlet inner diameter and said pair of downstream primary segments having an inner diameter less than the

outlet inner diameter, a pair of upstream secondary segments connected to each of said upstream primary segments and a pair of downstream secondary segments connected to each of said downstream primary segments, said upstream secondary segments having an inner diameter less than the inner diameter of the upstream primary segments and said downstream secondary segments having an inner diameter less than the inner diameter of the downstream primary segments, a pair of tertiary segments connected to each of said upstream secondary segments and downstream secondary segments, said tertiary segments having an inner diameter less than the inner diameter of the upstream secondary segments and the downstream secondary segments, a Y-coupling at each connection between: the inlet and the pair of upstream primary segments; the outlet and the pair of downstream primary segments; each primary segment and an associated pair of secondary segments; and each secondary segment and an associated pair of tertiary segments.

12. (new) A beverage cooling apparatus comprising:

a beverage conducting conduit having an inlet, an outlet, and a heat exchanging section between the inlet and the outlet, said heat exchanging section formed in a reciprocating pattern; and

a coolant circulating system comprising an inlet, an outlet, and a plurality of conduits in a heat exchanging relationship with the beverage conducting conduit, said coolant circulating system further comprising a plurality of fluid dividing stages on an upstream side of the coolant circulating system beginning at said inlet, and a plurality of

fluid consolidation stages on a downstream side of the coolant circulating system ending at said outlet, each dividing stage exactly doubling the number of conduits immediately upstream of the dividing stage and each consolidating stage exactly halving the number of conduits immediately downstream of the dividing stage;

wherein each dividing stage and each consolidation stage includes a Y-coupling to equally divide the flow on the upstream side and to conjoin the flow on the downstream side of the coolant circulating system.

13. (new) A beverage cooling apparatus comprising:

a plurality of beverage conducting tubes each having an inlet end, an outlet end, and an intermediate portion comprising an alternating pattern of runners and recurvate members between said inlet end and said outlet end;

a coolant heat exchanging unit comprising an inlet having a first inner diameter, a first Y-coupling connected to the inlet at a first stage, first and second upstream intermediate segments in fluid communication with first Y-coupling, said first and second upstream intermediate segments having an inner diameter less than the inlet inner diameter, a second Y-coupling connected to the first upstream intermediate segment at a second stage and a third Y-coupling connected to the second upstream intermediate segment at the second stage, four heat exchanging lines connected to respective outlets of the second and third Y-couplings and each heat exchanging line having an inner diameter less than the inner diameter of the first and second upstream intermediate segments, the

four heat exchanging lines arranged in a heat exchanging relationship with the beverage conducting tubes at their respective intermediate portions, fourth and fifth Y-couplings connecting the four heat exchanging lines with first and second downstream intermediate segments, and a sixth Y-coupling connecting the first and second downstream intermediate segments with an outlet;

a solid metal jacket encasing the beverage conducting tubes and the coolant heat exchanging unit between their respective inlets and outlets.

14. (new) A cold plate for a beverage chilling apparatus comprising:

a plurality of elongate beverage conducting tubes arranged substantially in an alternating pattern of runners and recurvate members; and

a coolant circulating system disposed in heat exchanging relation with the plurality of elongate beverage conducting tubes and comprising an inlet tubular member, first and second upstream intermediate tubular members in fluid communication with the inlet tubular member and connected to the inlet tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, first and second pairs of heat exchanging tubular members in fluid communication with the first and second upstream intermediate tubular members, the first pair of heat exchanging tubular members connected to the first upstream intermediate tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced

equal distance from the one inlet, the second pair of heat exchanging tubular members connected to the second upstream intermediate tubular member by a splitter having only one inlet and only two outlets, the two outlets spaced equal distance from the one inlet, first and second downstream intermediate tubular members, said first downstream intermediate tubular member connected to the first pair of heat exchanging tubular members by a consolidating valve having only two inlets and only one outlet, and the second downstream intermediate tubular member connected to the second pair of heat exchanging tubular members by a consolidating valve having only two inlets and only one outlet, and an outlet tubular member connected to the first and second downstream intermediate tubular members by a consolidating valve having only two inlets and only one outlet.